

Notice of Allowability

Application No.

10/601,883

Applicant(s)

RYU ET AL.

Examiner

Keith O. Robinson, Ph.D.

Art Unit

1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 3 July 2003.
2. ☒ The allowed claim(s) is/are 1,2 and 4-15.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 29 September 2003
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 17 October 2005.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Chen Jiwen on 17 October 2005.

IN THE SPECIFICATION

On page 6, line 3 from the bottom of the specification was amended to read: FIGS. 2A-2B show RT-PCR analysis of transgenic R₁ and R₂ dandelion plants. FIG. 2A, Two wild-type and five independent transgenic R₁ dandelion plants. RNA obtained from R₁ generation-transformed plants exhibited a 986 bp band, but except transgenic plant number 2, implying the presence of false-positive transgenic plants among hygromycin-resistant plants. FIG. 2B, Two wild-type and five independent transgenic R₂ dandelion plants. Total RNA was isolated from wild-type and transgenic plants of dandelion, reverse-transcribed with gene-specific primers and used as templates for PCR, resulting in the amplification of a 986 bp GUS cDNA fragment and 303 bp 18S rRNA fragment. RT-PCR analysis revealed similar levels of GUS expression in five independent R₂ transgenic lines, suggesting stabilized gene expression.

Art Unit: 1638

On page 26 (ABSTRACT) the last sentence was deleted and now reads:

Methods for *Agrobacterium*-mediated transformation and regeneration of dandelion plants are disclosed. [The invention encompasses regenerated, fertile dandelion plants, transgenic seeds produced therefrom, and subsequent generations.]

IN THE CLAIMS

Claim 1 was amended to read: Claim 1 (CURRENTLY AMENDED) A method of preparing transgenic [dandelion] shoots of a plant of the genus *Taraxacum*, the method comprising:

(a) pre-incubating [dandelion] explants of said plant in a pre-incubation medium containing auxin, cytokinin, acetosyringone, glucose, sucrose, and betaine[, thereby producing transformed dandelion explants];

(b) contacting and co-cultivating [dandelion] said plant explants with *Agrobacterium* cells comprising a DNA fragment of interest and an antibiotic selection marker operably linked to at least one T-DNA border in a [plate containing] pre-incubation medium, thereby producing transformed [dandelion] plant explants; and

(c) culturing the transformed [dandelion] plant explants in a selection medium containing auxin, cytokinin, maltose, sucrose and antibiotic, thereby producing transformed [dandelion] plant shoots,

wherein 0.05~0.5 mM of acetosyringone and 1~3% (w/v) of glucose are included in the pre-incubation media, and 0.5~3% (w/v) of maltose is included in the selection medium.

Art Unit: 1638

Claim 2 was amended to read: Claim 2 (CURRENTLY AMENDED) The method of claim 1, further comprising culturing the transformed [dandelion] plant shoots in root induction medium containing auxin, cytokinin, maltose, sucrose and antibiotic, thereby producing transgenic [dandelion] plants.

Claim 3 was cancelled.

In claim 4, "dandelion" was replaced with - - plant - -.

Claim 5 was amended to read: Claim 5 (CURRENTLY AMENDED) The method of claim 1, wherein said DNA fragment of interest is [at least one] selected from[, but is not limited to,] the group consisting of rubber polymerase, cis-prenyltransferase, isopentenyl pyrophosphate synthase [or] and albumin.

In claims 6 and 7, "the dandelion" was replaced with - - said - -.

In claim 14, line 1, "dandelion" was deleted.

Drawings

2. The drawings, filed 12 November 2003, are approved by the examiner.

SUBSTANCE OF THE INTERVIEW

3. The Examiner spoke with Applicant's representative, Chen Jiwen, with regards to amending claims 1-7 and 14 in order to address written description and enablement issues and to place the application in condition for allowance.

REASONS FOR ALLOWANCE

4. The following is an examiner's statement of reasons for allowance: Claims 1-15 are deemed free of the prior art, given the failure of the prior art to teach or reasonably suggest a method of preparing transgenic shoots of a plant of the genus *Taraxacum* comprising pre-incubation of plant explants, contacting and co-cultivating said plant explants with *Agrobacterium* cells comprising a DNA fragment of interest and an antibiotic selection marker operably linked to at least one T-DNA border, and culturing the transformed plant explants in a selection media, wherein 0.05~0.5 mM of acetosyringone and 1~3% (w/v) of glucose are included in the pre-incubation media, and 0.5~3% (w/v) of maltose is included in the selection medium.

The closest prior art, Song et al (Acta Horticulturae 289: 261-262, 1991) teach a method of preparing transgenic dandelion shoots comprising contacting and co-cultivating dandelion explants with *Agrobacterium* cells (EHA010 carrying the pROA93 plasmid) comprising a DNA fragment of interest (a 35S/NPT-II gene) and culturing the transformed dandelion explants in a selection medium.

The method taught by the prior art differs from the method of the instant invention in that the prior art does not teach that 0.05~0.5 mM of acetosyringone and 1~3% (w/v)

Art Unit: 1638

of glucose are included in the pre-incubation media, and 0.5~3% (w/v) of maltose is included in the selection medium nor does it teach the pre-incubation of explants in a pre-incubation medium.

Conclusion

5. Claims 1-2 and 4-15 are allowed.
6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith O. Robinson, Ph.D. whose telephone number is 571-272-2918. The examiner can normally be reached on Monday - Friday 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on 571-272-0745. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1638

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Keith O. Robinson, Ph.D.

October 19, 2005

DAVID H. KRUSE, PH.D.
PRIMARY EXAMINER
